

REMARKS

The Office Action of August 8, 1995 was received and carefully reviewed. Reconsideration and withdrawal of the currently pending rejections are respectfully requested for the reasons advanced in detail below. Claims 21, 26, 31, 36, 41, 45, 36 and 49 are amended herein and new claim 53 is added. Consequently, claims 21-53 are currently pending in the instant application.

FORMAL REJECTIONS


Initially, addressing the formalistic rejections provided in the Office Action, claims 49-52 are rejected under 35 U.S.C. §112, second paragraph, for minor matters provided on page 2 of the Office Action which are taken care of by the above amendments to claim 49.

OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTION

Claims 21-52 are rejected under the judicially created doctrine of double patenting over claims 21-39 of the parent application of the instant application, namely, co-pending application (SEL) Serial No. 08/142,048. Applicants assume that this rejection is a provisional rejection since claims have not been allowed in either of these applications. In view thereof, Applicants respectfully request that this rejection be held in abeyance until claims in either of these applications are designated as allowed.

SUMMARY OF INVENTION

The present invention is directed to a laser processing method wherein the doping of one region of a semiconductor layer is performed to a shallower depth than the doping of another. Specifically, the laser processing method includes the steps of forming a gate member on a



semiconductor and implanting an impurity into one region of the semiconductor adjacent the member by using the member and a mask material as masks. The mask material is then removed and another area of the semiconductor located adjacent and opposite to the one region to form another region which is doped to depth shallower than that of the first region (claim 21). The member may comprise a floating gate (claim 22) and the first region may overlap with the member more widely than the other region overlaps with the member (claim 23). The method of the present invention may also be used to form a memory and a MOS device. In each aspect of the invention, one of the formed regions is not in contact with the other formed region.

PRIOR ART REJECTIONS

Claims 21-52 are rejected under 35 U.S.C. §103 as obvious in view of Hori ('903). Specifically, the Office Action contends that Hori discloses the introduction of two impurities into a semiconductor by using the gate electrode and/or masking material as masks such that a second impurity overlaps with the first impurity and has a depth deeper than the first. (See, Figures 2A-2D) Further, it is alleged that the making of floating gate devices (EPROMs and EEPROMs) are conventional devices which can be produced using the method disclosed in Hori.

With respect to Hori, the shallow region (LDD) overlaps with the deep region. However, according to the present invention, as shown in Figs. 9A to 9E, the shallow region is not in contact with the deep region. The claims of the instant application are amended to expressly recite this patentable distinction.

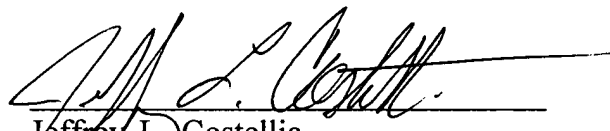
Further, it appears that the method disclosed by Hori in Figures 2A-2D is the opposite of the method of the present invention, in that, the

doping of Figure 2C occurs with only the gate acting as a mask to form the shallower region (LLD) followed by the formation of a mask material and the subsequent doping of the semiconductor region, as shown in Figure 2D, to form the deeper regions. The present invention, on the other hand, discloses the formation of the gate and mask material first to form the deeper region followed by the removal of the mask material and subsequent doping of the second region to form the shallower doped region.

New claim 53 is added to recite an additional aspect of the present invention, which should also be distinguishable over the cited art of record for the reasons advanced above.

In view of the foregoing, it is respectfully requested that the rejections of record be reconsidered and withdrawn by the Examiner, that claims 21-52 be allowed, that new claim 53 be allowed and that the application be passed to issue. If the Examiner believes a conference would be of benefit in expediting the prosecution of the instant application, he is hereby invited to telephone counsel to arrange such a conference.

Respectfully submitted,



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